AcasysStudio

Videosequence browser for PPM2000 unit

User manual

Version 1.09

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History of revisions

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101	16. 04. 2010	Document revision.
102	22. 10. 2010	Chapter 2.1. – Editing Chapter 3.3. – New chapter.
104	14. 11. 2011	Added Chapter 4 – PPMDiskExtractor.
107	07. 12. 2011	Added Chapter 5 – PPMFS.
108	11. 01. 2012	Integration PPMDiskExtractor into AcasysStudio, revision.
109	18. 07. 2012	Profiles added.

Related documentation

1. AcasysStudio – Videosequence browser for PPM2000 unit
   file: acasysstudio_ms_en_xxx.pdf
2. ACASYS system communication
   file: acasys-ks_ms_en_xxx.pdf

1. Introduction

ACASYS is a camera system kit, using IP cameras. As a component of camera system is used the **PPM2000** unit, which allows continual recording on hard disk from all cameras involved in system. The record is put into reality.

AcasysStudio represents by itself a tool for visualization intended for examining and searching data within video-databases of coaches, equipped by camera system. AcasysStudio enables to look at video scenes from individual cameras, and at the same time to each video frame are available data about coach movement.

2. Program install

Installation is consisting of installing AcasysStudio and profiles which define:

- Communication parameter with recording unit
- Number of cameras
- Picture position in AcasysStudio
- Picture rotation

For using AcasysStudio it must be installed at least one profile.

2.1. AcasysStudio install

For installing AcasysStudio, run the installation file AcasysStudi_xxxx. After approval of the licence conditions, we can select destination folder of AcasysStudio.

Because it is necessary to install profiles which must be in the same folder like AcasysStudio we recommend not to change default destination folder.

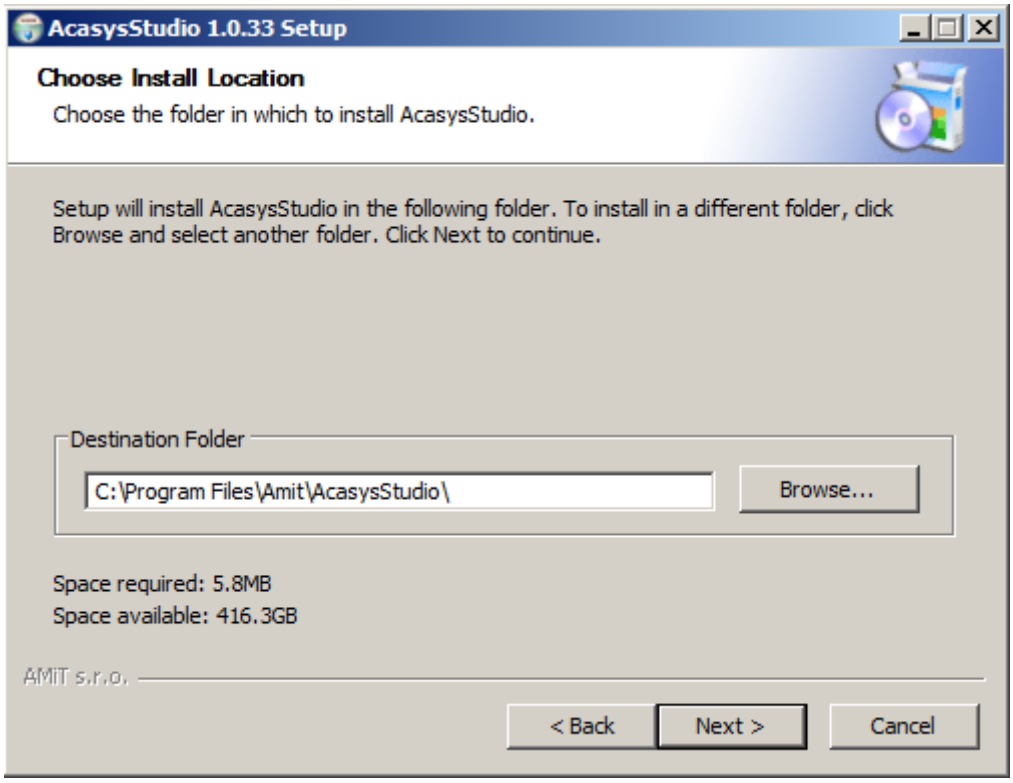

AcasysStudio 1.0.33 Setup
Choose Install Location
Choose the folder in which to install AcasysStudio.
Setup will install AcasysStudio in the following folder. To install in a different folder, click Browse and select another folder. Click Next to continue.
Destination Folder
C:\Program Files\Amit\AcasysStudio\
Browse...
Space required: 5.8MB
Space available: 416.3GB
AMiT s.r.o.
< Back
Next >
Cancel

Fig. 1 - Settings of destination folder of AcasysStudio

2.2. Installation of profiles

At first must be installed AcasysStudio and then profile(s) can be installed. If it doesn't, return to the previous chapter.

Run the installation file of profile which you want to install. After approval of the licence conditions, we can select destination folder of profile.

For correct program running, profile must be installed in the same folder like AcasysStudio. If we were not changed destination folder of AcasysStudio, we can continue with button 'Install'. If we were changed it, it must be set the destination folder of profile on ".../AcasysStudio".

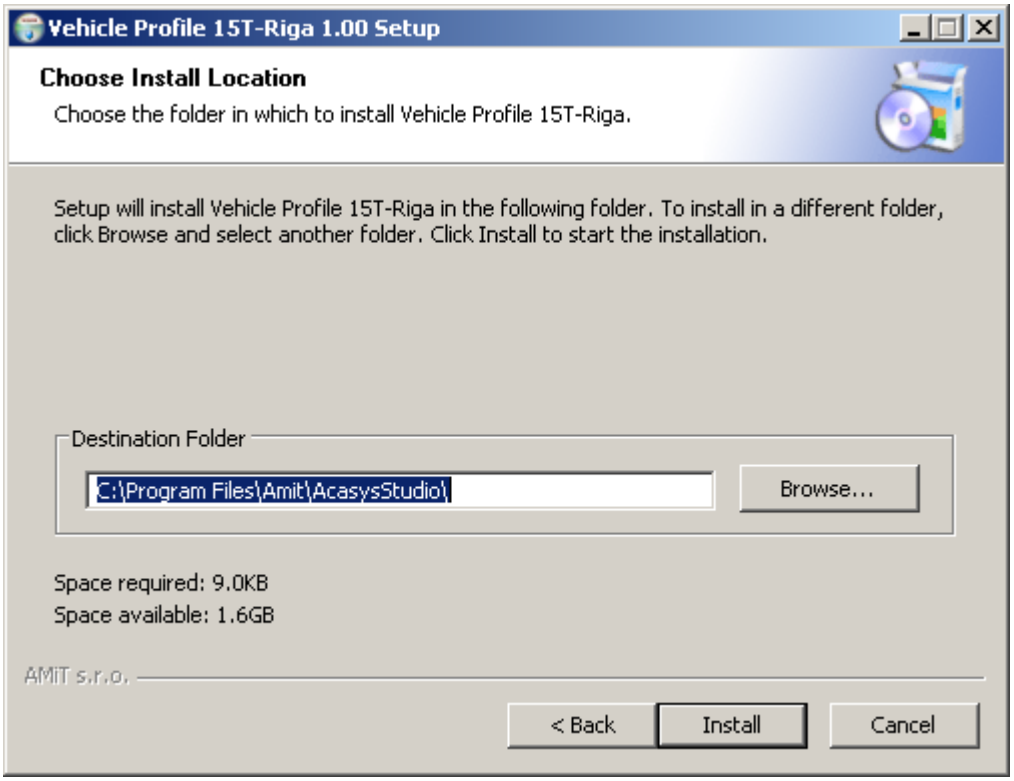

Vehicle Profile 15T-Riga 1.00 Setup
Choose Install Location
Choose the folder in which to install Vehicle Profile 15T-Riga.
Setup will install Vehicle Profile 15T-Riga in the following folder. To install in a different folder, click Browse and select another folder. Click Install to start the installation.
Destination Folder
C:\Program Files\Amit\AcasysStudio\
Browse...
Space required: 9.0KB
Space available: 1.6GB
AMiT s.r.o.
< Back
Install
Cancel

Fig. 2 - Settings of destination folder of profile

3. Working with environment

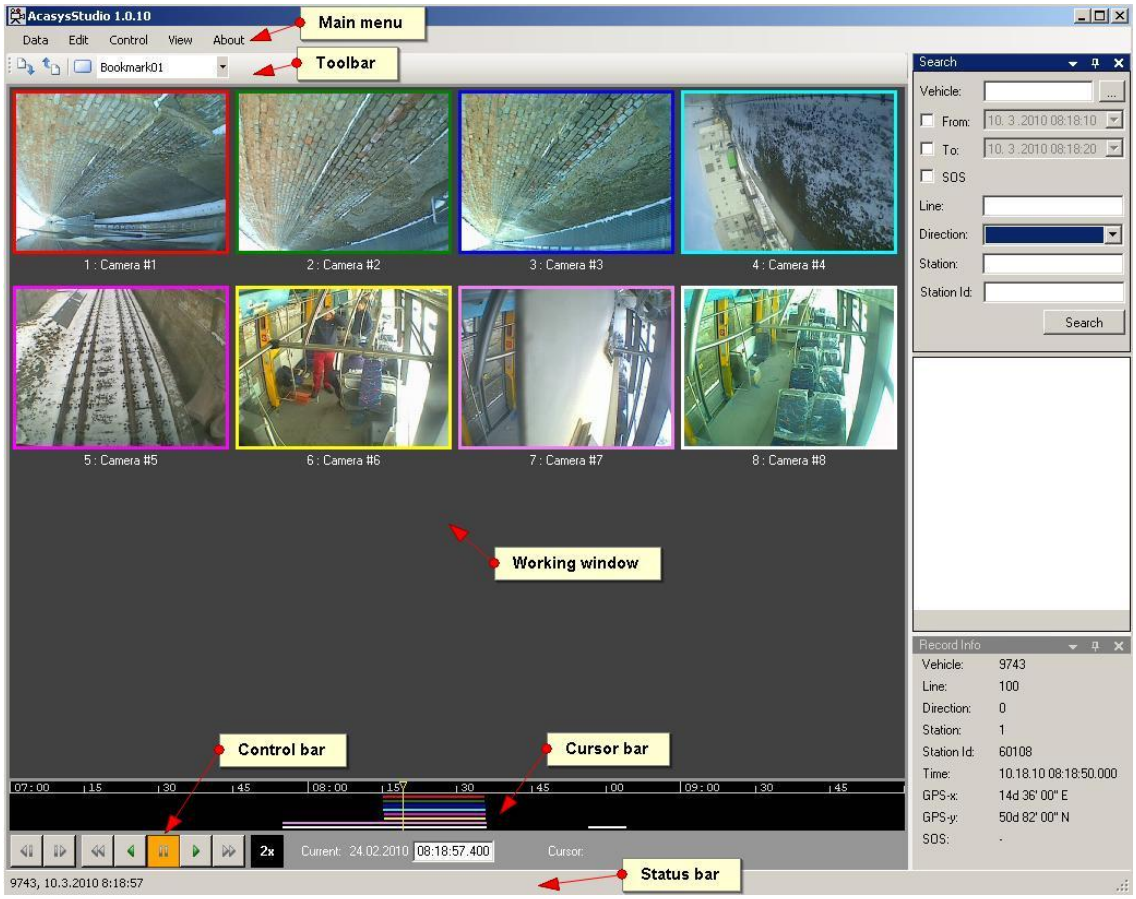


Fig. 3 - Initial screen

Environment main components

Main menu – enables to access most program functions

Tool bar – contains the icons with abbreviations, related to individual program functions

Working window – window for viewing the video sequences

Cursor bar – for quick movement along the video

Control bar – enables watching the video and moving along video sequences

Status bar – shows the details about activities being performed

3.1. Main Menu

Through the main menu are enabled almost all environment functions.

Fig. 4 - Main menu bar

The **Data** item enables attaching to video database.

Data item

Root Directory – setting path to video database

Data Download – loading data from recording unit

Export – export of selected sequence

Exit – exit from environment

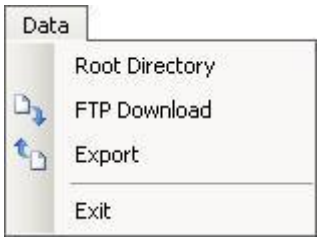


Fig. 5 - Data item

Edit item

Create Bookmark – creating the video-bookmark

Option – environment localization (reset of an application is necessary when the language set is changed)

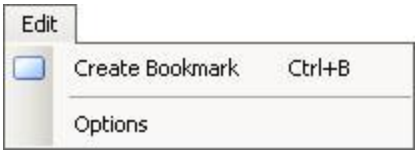


Fig. 6 - Edit item

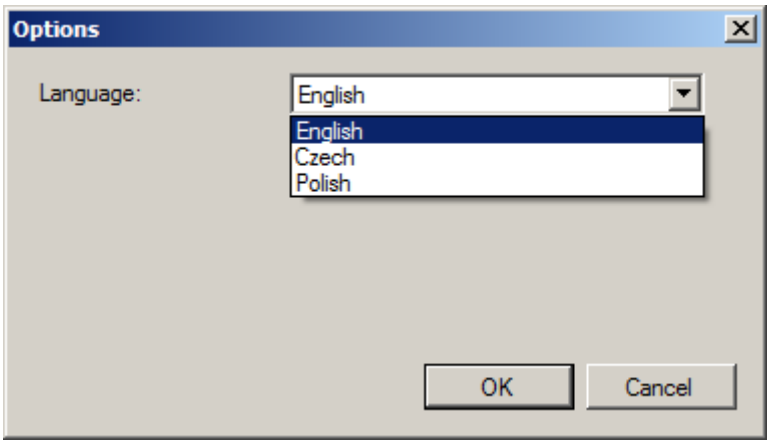


Fig. 7 - Language set selection

The **Control** item is intended to play the video (start/stop/play upwards/downwards, accelerated play, screen step).

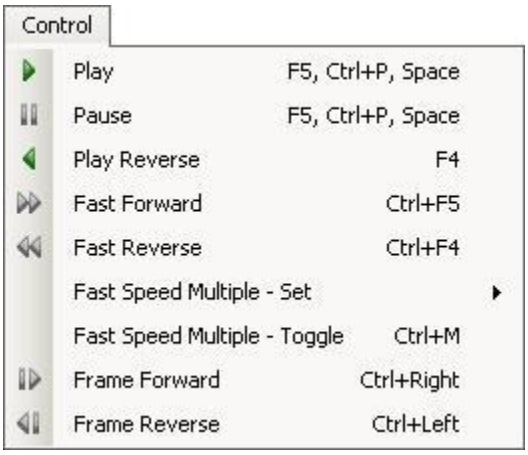


Fig. 8 - Control item

The **View** item is used for searching the video sequences and displaying information related to individual screens.

View item

Data Explorer – video database viewer

Search – sequence searcher

Advanced Search – conditional sequence searcher

Bookmarks – video-bookmarks table and its editing

Record Info – information about sequence current position

Reset Windows Layout – set Windows to the default layout

Fig. 9 - View item

3.2. Toolbar

Data Download – download data from recording unit

Data Export – Export of selected sequence

Create Bookmark – creating the video-bookmark

Go To Bookmark Bookmark01 – passing to selected video-bookmark

3.3. Working window

Enables to view the played video, even from more cameras. By double click on selected video track a new window is opened where we can view separately the video track and create video bookmarks.

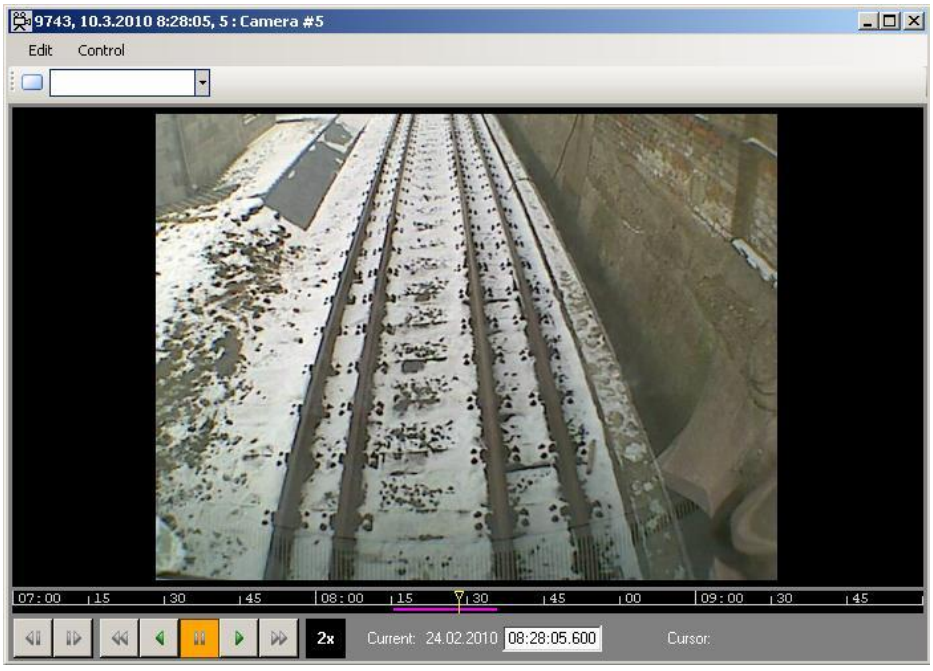


Fig. 10 - Individual window with video track

3.4. Cursor bar

It is a tool that uses cursor for quick movement through video track. Individual videos are differentiated by colour.

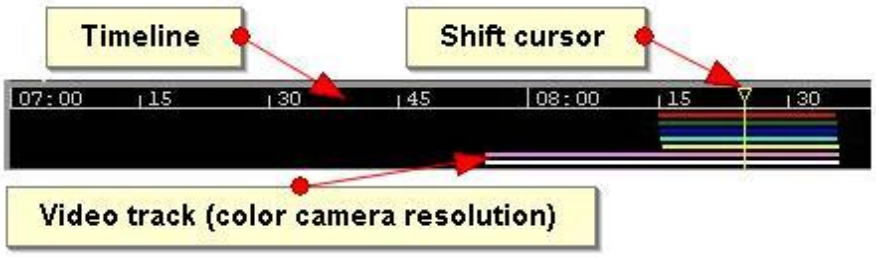


Fig. 11 - Cursor bar

4. Working with database

This section describes how to work with and search in the video-databases.

4.1. Reading database from directory

Root Directory

To work with video-database it's necessary to load it into environment. This can be made through main menu **Data** → **Root Directory.** When path is set through **Browse** item, then it's necessary to keep certain hierarchy of source directory, as shown on next figures.

Loading sequences into working window is enabled through **View** → **Data Explorer** and selected object is viewable via **View** icon. Updating the video-database can be made through **Refresh** icon.

Fig. 12 - Specification of path to video-database

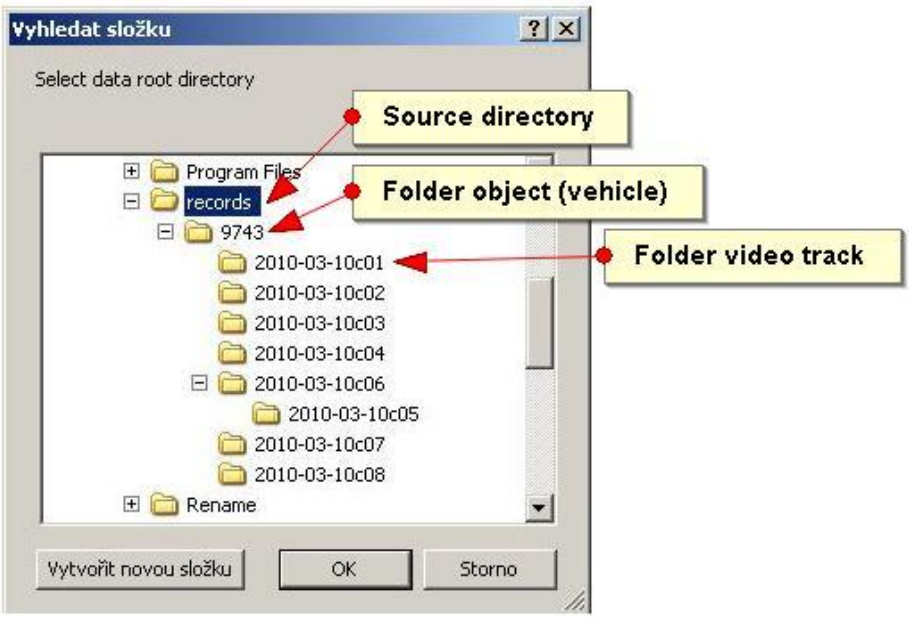


Fig. 13 - Root directory hierarchy

5. Download data from recording unit

Data can be downloaded either by connecting disk over USB to SATA converter, or by connecting to Ethernet network.
Disk in recording unit is used only as linear storage space because it has no file system. Because when accessing disk via USB-SATA converter a sector type reading method is used, it is necessary to have administrator rights – it is true primarily when using Windows 7. In that case the program needs to be launched in "Admin" mode.

It's not true when downloaded via Ethernet, program works also with lower level rights.

Data from disk are collected by two ways:

- By downloading over USB-SATA converter from disk, taken out from recording unit.
- By downloading data via Ethernet from disk, which is located in running recording unit.

From recording unit can be retrieved video and potentially the status information (line number, station, GPS etc.). With respect to large volume of video data it is always about reading from limited time interval (download of entire disk volume 600 GB takes about 5 hours).

Access to downloading process is available via main menu **Data** → **Data Download** or from toolbar.

5.1. Connecting via USB-SATA converter

- Select the proper disk (see figure below). In the disk label is mostly used string "USB". Authentication of correctness of disk, which is being selected can be performed in section Start\Computer\Administrate\Disk Administration).

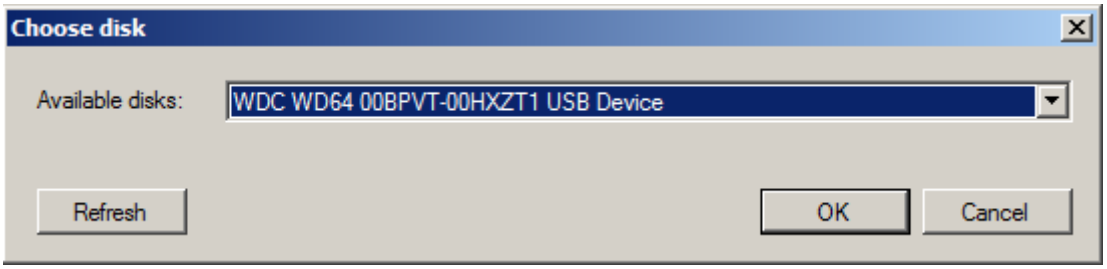


Fig. 14 - Disk selection

- Window for data retrieval is opened (see Fig. 16 - Retrieving data by entering time interval) and preliminary reading of disk content is started.
- After completing the preliminary reading we can choose the way of data retrieval either by entering the time interval (the **Time Range** tab), or by selecting SOS events (the **SOS** tab).

5.2. Connecting via Ethernet

- Select from list the profile option, which it is used in recording unit (see figure below).

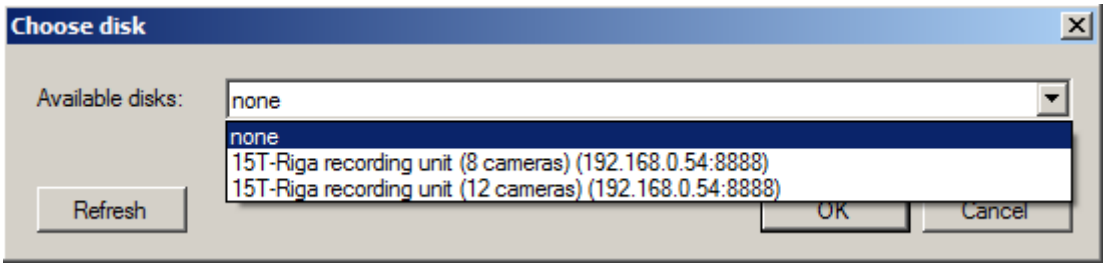


Fig. 15 - Selection of connection via Ethernet

The profiles determine:

- Communication parameter`s (IP address and port)
- Number of cameras downloading
- Rotation of picture
- Picture position in AcasysStudio

Next procces is on principle the same as when connecting disk via USB-SATA converter. Reports in window “Messages” are different from reports in case of connecting via converter, in both cases are resulting the .avi files (may be even more) and .xml file with metadata (just one for each day).

5.3. Data retrieval in Time Range tab

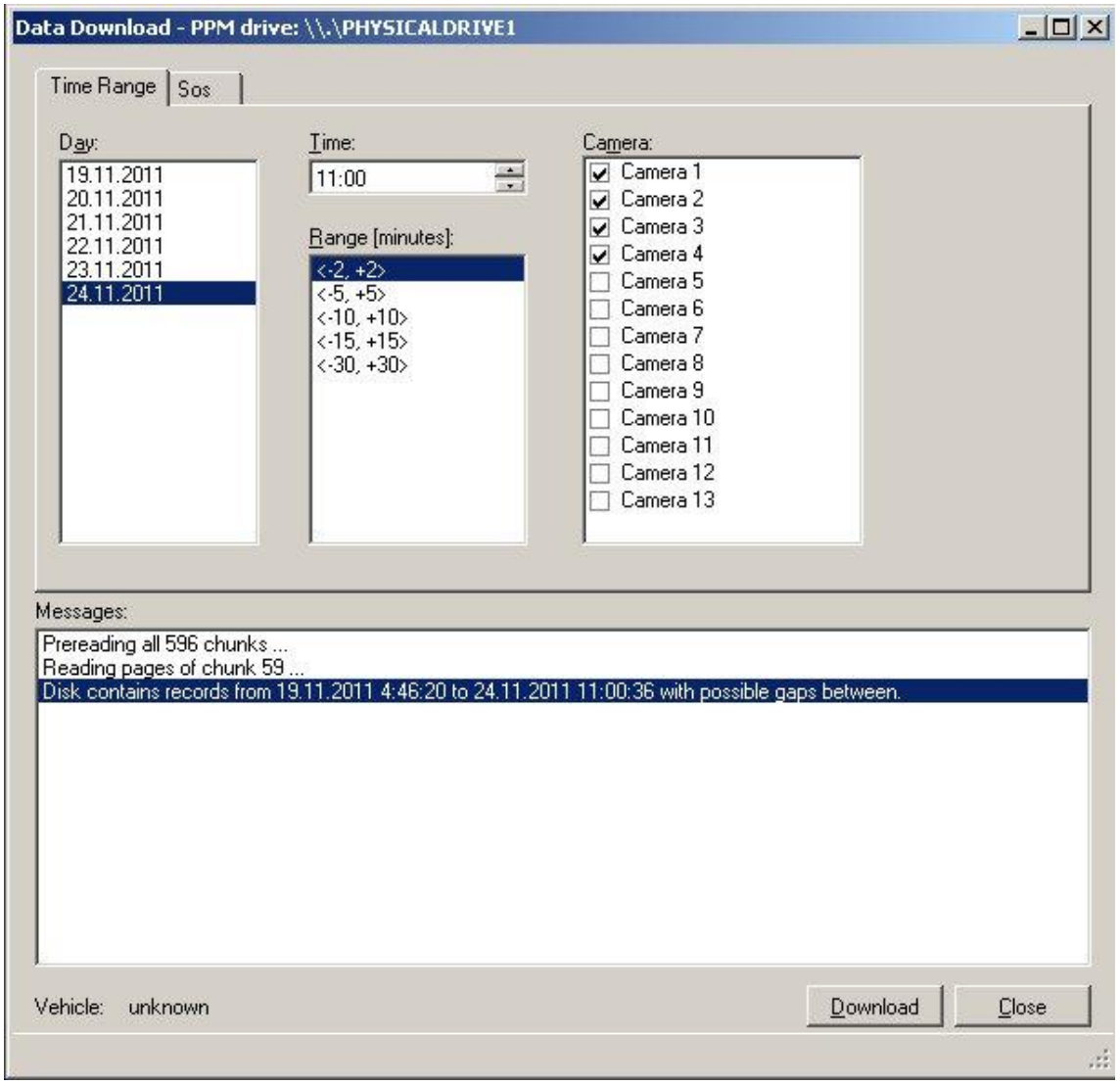


Fig. 16 - Retrieving data by entering time interval

Day – displays the individual days, which are at least partly contained on disk
Time – selection of time interval in which records are required to be captured
Range – selecting of time range around chosen time (in minutes)
Camera – selection of cameras
Messages – window, in which details about performed activity are viewed

Now enter the data retrieval parameters

- Recording day
- Time (time interval midpoint)
- Time interval
- One or more cameras

By pressing the Download button launch the data retrieval itself.

5.4. Data retrieval in SOS tab

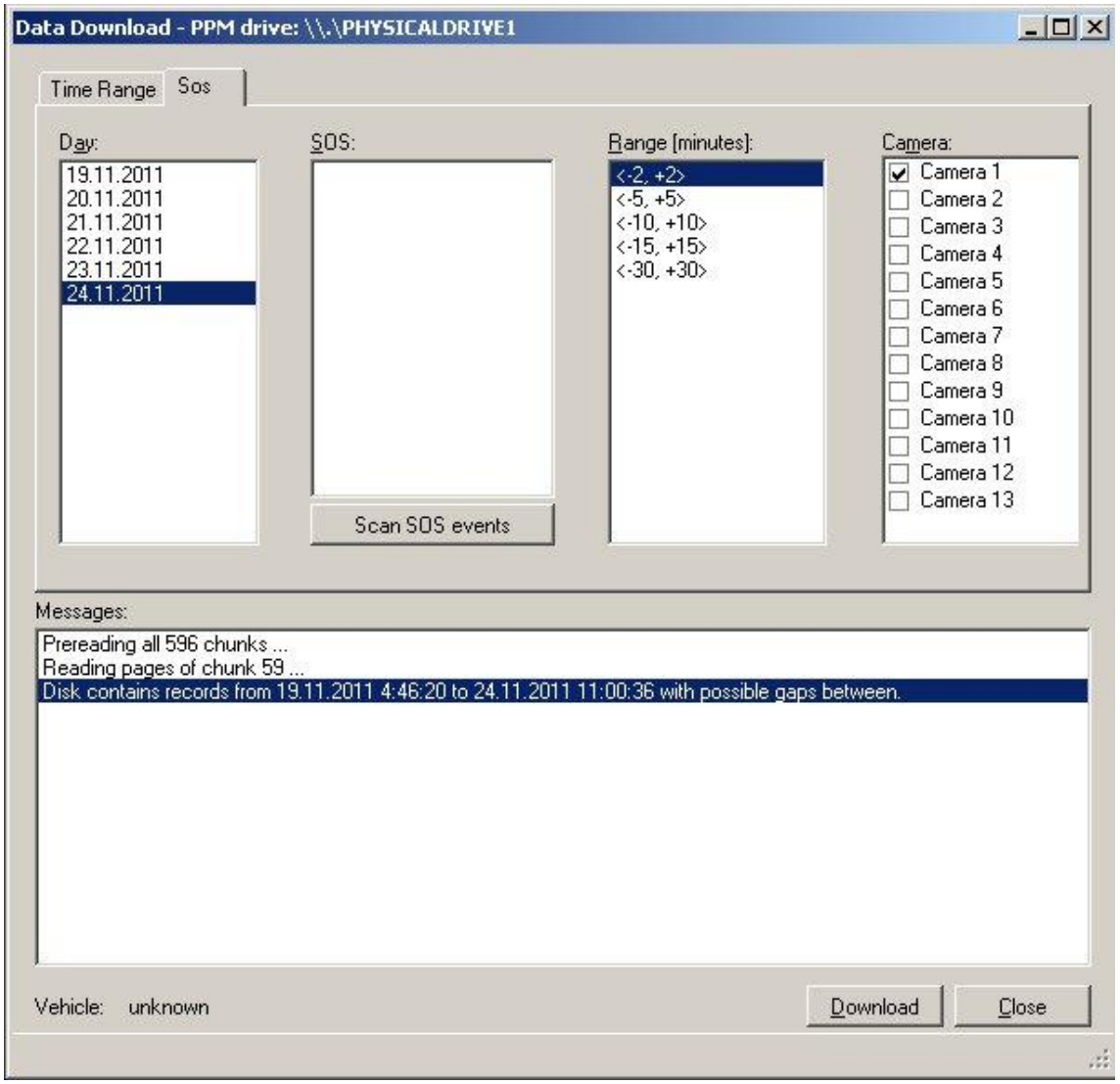


Fig. 17 - Data retrieval by selecting the SOS events

Day – displays the individual days, which are at least partly contained on disk
SOS – selecting window, in which are displayed times of individual SOS events for chosen day
Scan SOS events – button for retrieving SOS event
Range – selection of time interval around chosen SOS events (in minutes)
Camera – selection of cameras
Messages – window, in which details about performed activity are viewed

Now select the day for retrieving the SOS events. Launch the retrieval of SOS events by pressing **Scan SOS events** button.

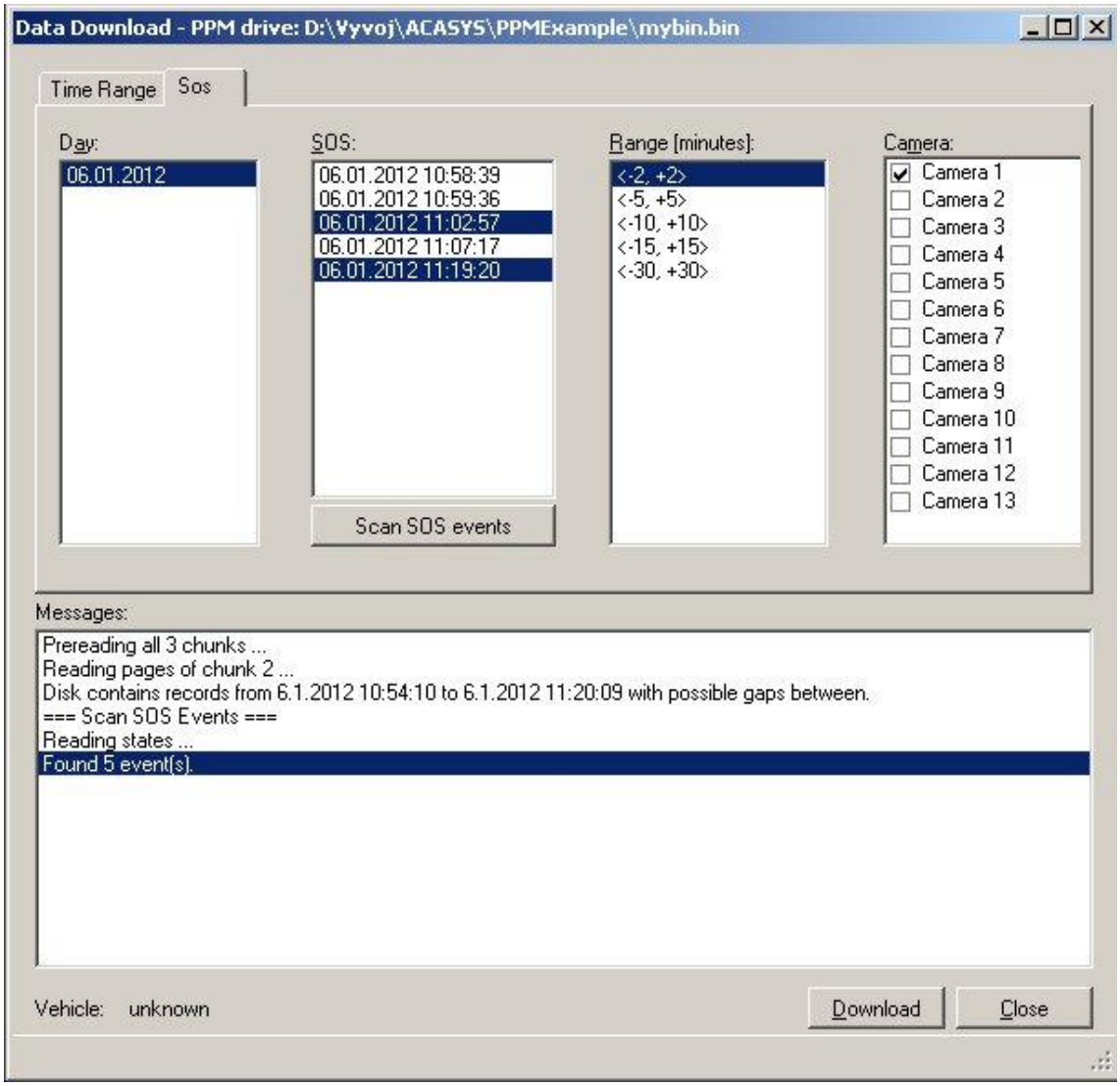


Fig. 18 - SOS events that have been read

Enter the parameters for data retrieval

- One or more SOS events
- Time interval
- One or more cameras

Reading of data is launched by pressing the Download button.

6. Operations over retrieved data

Downloaded data can be changed profile, exported or searching operations can be performed over them.
Searching is dependent on particular look of recording unit firmware. In recording unit need not be present the metadata (station names, line etc.); then searching under those criterions is not possible.

6.1. Change profile

In a case when we selected wrong profile during the data download or we downloaded data via USB, then it is possible to change the profile.

Changing profile can be done for whole vehicle, not for individual record(s)

Procedure Mark the vehicle in a window **Data** (View → Data), which we want to change the profile. Use right mouse button (RMB) on the selected vehicle. Now you can see the context menu (see picture below).

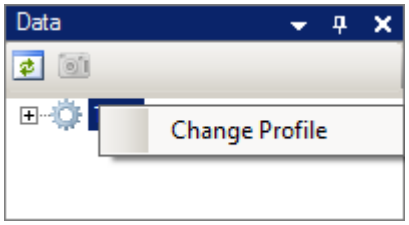


Fig. 19 - Change profile

After select **Change profile.** We can see dialog box with list of available profiles.

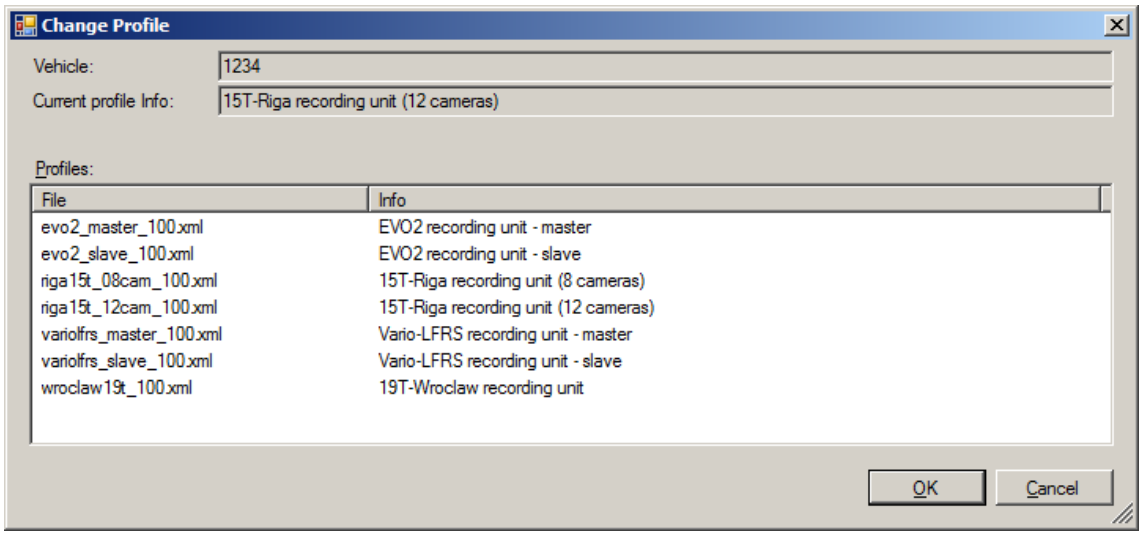


Fig. 20 - Select of profiles

From this box we can select a new profile and pressing “OK” button we confirm the operation. If the change profile was made correctly we can see all cameras in the right positions. It means no blank or missing camera(s).

If we do not see changes, we have to do all process again. To check if it is set the correct profile, we have to reopen box **Change profile**. In the line “Current profile info” (see the previous picture) should be the name of profile which we selected.

6.2. Video frames export

Via main menu item **Data** → **Export** is possible to select and then save video frames from selected time interval.

Selection

Vehicle – vehicle selection
Interval – selection according to time interval from - to (DD.MM.YYYY HH:MM:SS)
Time – selection according to Time (DD.MM.YYYY HH:MM:SS) and range around specified time ±Delta [min].

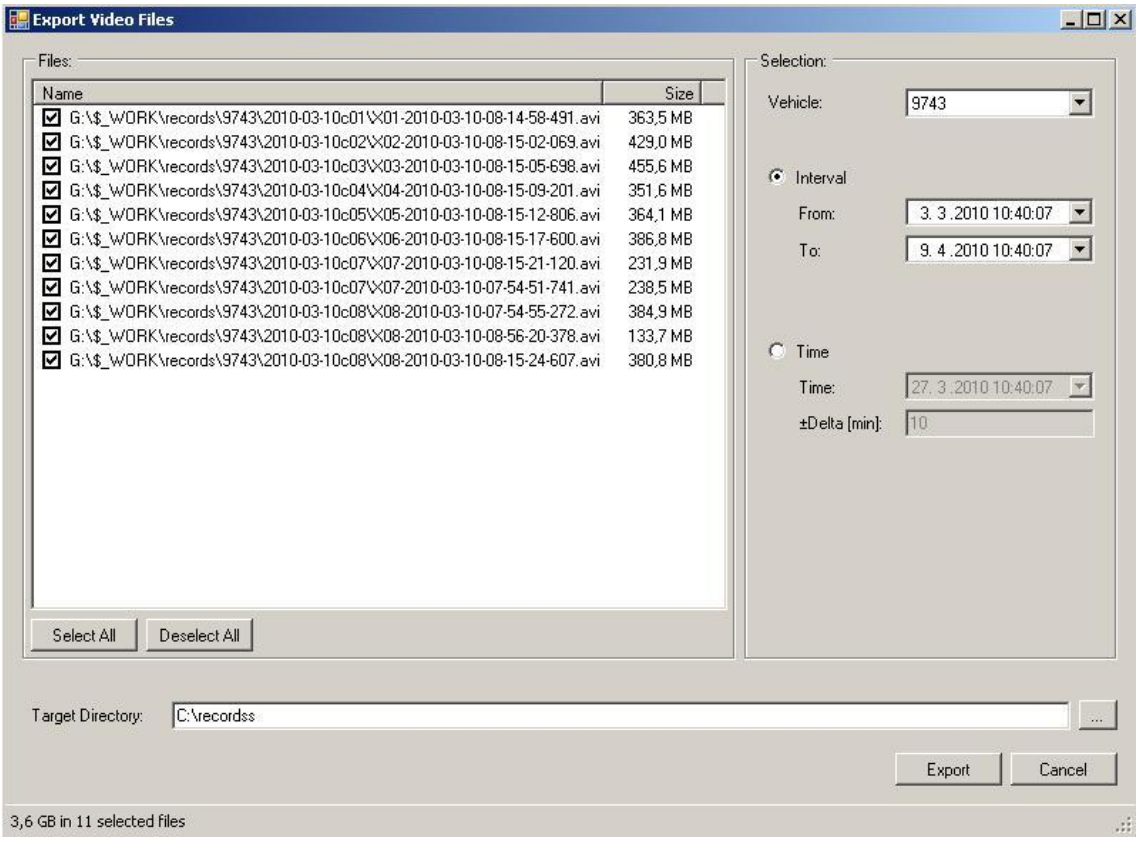


Fig. 21 - Video frames export window

After confirming selection the matching files in File window are ticked. Then you can move them by **Export** button onto required place in selected Target Directory.

6.3. Searching video frames

Through main menu item **View** → **Search** you can search the individual video frames according to specified parameters (Vehicle, Line, Direction, Station, Station Id, Time from-to, SOS) There is a logical AND between individual items (searching for concurrent appearance of all items which are filled-in). In the contrary - the unfilled item is ignored when searching.

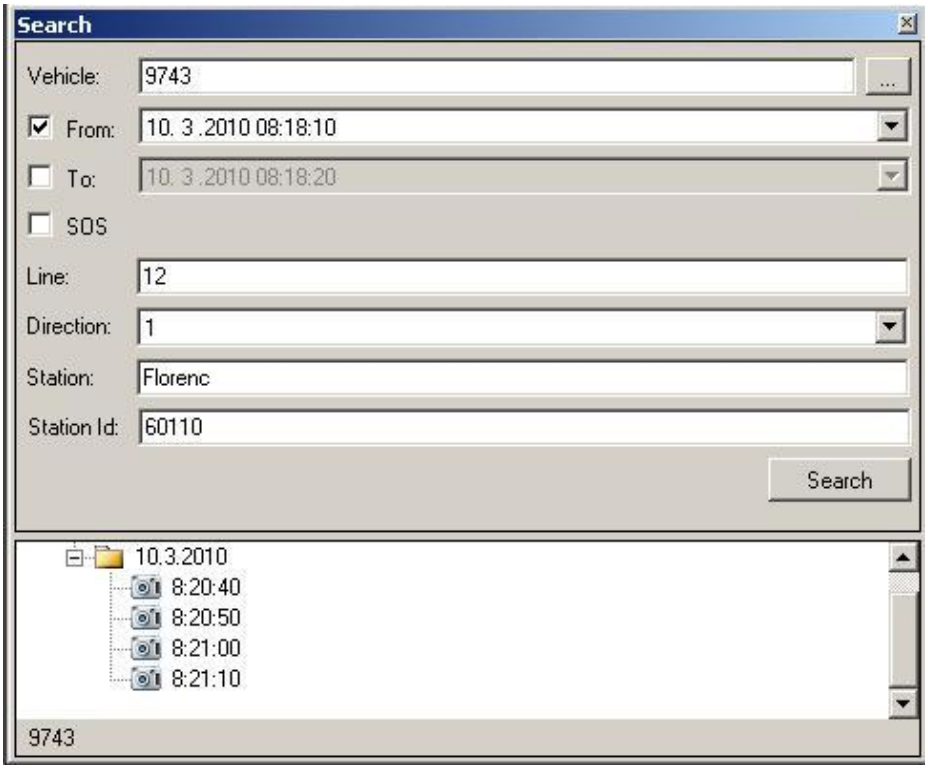


Fig. 22 - Searching in video frames

6.4. Conditioned searching of video frames

With using the main menu item **View** → **Advanced Search** → **Current Request** you can search for video frames matching the particular condition (Vehicle, Time from-to, condition for database data).

Conditioned searching lies in finding the particular data that can be spliced over logical conjunctions and conditions.

Logical conjunctions and conditions

And (together with) – selection according to concurrent occurrence of all requirements
Or (or) – selection according to occurrence of one from more requirements
… – without condition
== – equal
!= – not equal
> – greater
>= – greater or equal
< – lower
<= – lower or equal

Database data

Statement	Meaning
id	Identifier
lineid	Line number
dir	"0" backward ride, "1" forward ride
stnid	Current station numerical identifier
stname	Current station name
gps	GPS coordinates in GPGGA format
sos	Driver pressed the SOS button

Fig. 23 - Conditioned searching in video sequences

6.5. Bookmarks

Bookmarks provides better and faster orientation in video frame in form of frame bookmarks in specified time, alternatively in selected camera. The individual video bookmarks are saved in table, which allows their editing, ordering and transition to frame.

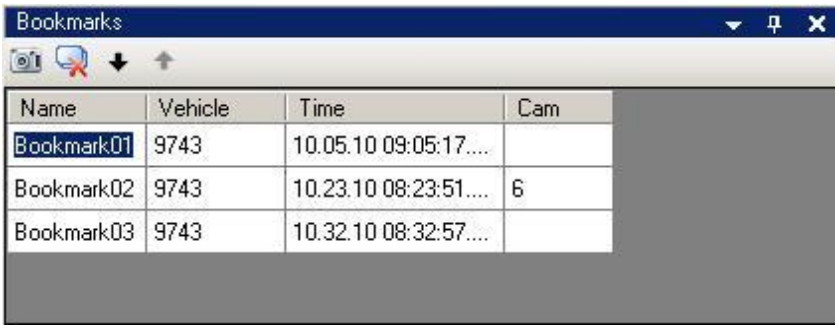


Fig. 24 - Bookmarks (video bookmarks)

7. Disk formatting

In recording unit can be used any disk with SATA interface, with minimum (hypothetical) size of 1 GB and maximum 2048 GB.

Before using disk in recording unit it is necessary to format it - this procedure prepares the disk internal structure for recording data. There is no file system on the disk, therefore it is considered to be a linear data storage.

Formatting process takes place primarily while firmware of recording unit is installed.

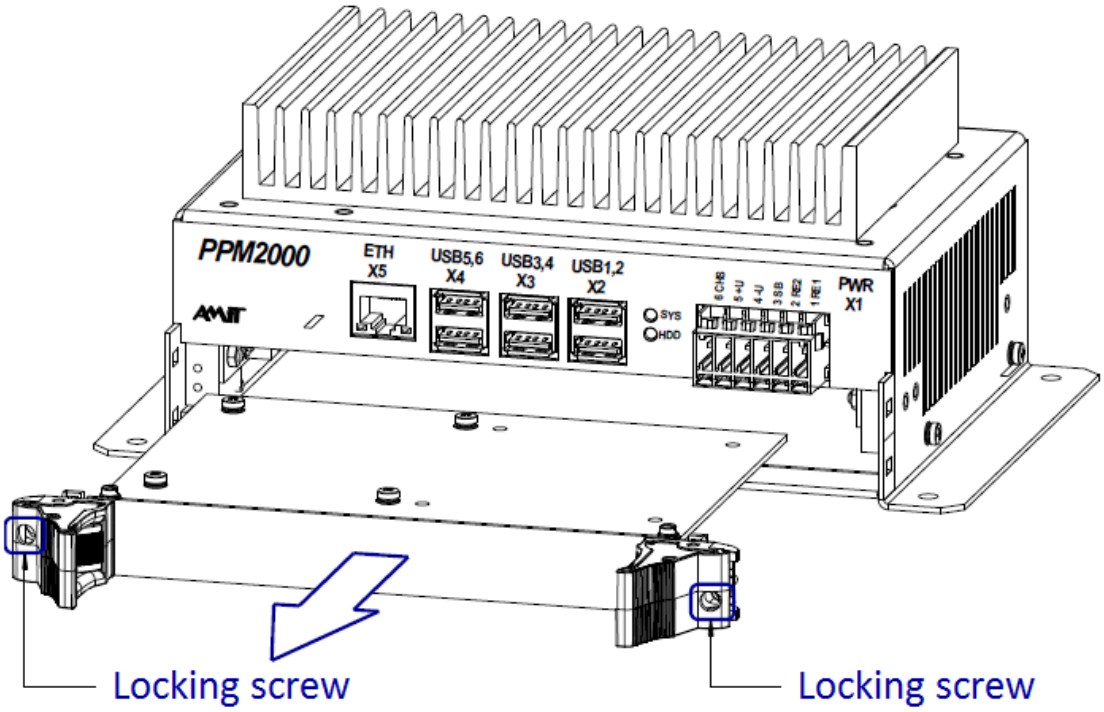
It is also possible to format disk by ppmfs.exe program, launched on PC to which is the disk attached via USB/SATA converter.

Hardware requirements

USB converter „USB 2.0 to IDE & SATA Cable“. No drivers for Windows XP SP2 and Windows 7 are needed.

Procedure

1. We disassemble disk from recording unit:
   - Make correct turn off the power of recording unit
   - Dismantle the recording unit (it is not necessary if the disk is easily accessible, without dismantling the unit).
   - Unscrew locking screw from HDD (see figure below)
   - Press both tabs and slide out the drive module



2. Connect the disk via „USB 2.0 to IDE & SATA Cable" converter and USB cable to service PC and subsequently connect the power supply.
3. Copy the file ppmfs.exe into any directory.

4. Start the console as administrator.
5. Go to directory where is stored the ppmfs.exe file and launch this program.
6. A simple guide appears on console, in which enter the number of disk which is to be formatted. Confirm by Enter. – see figure below.

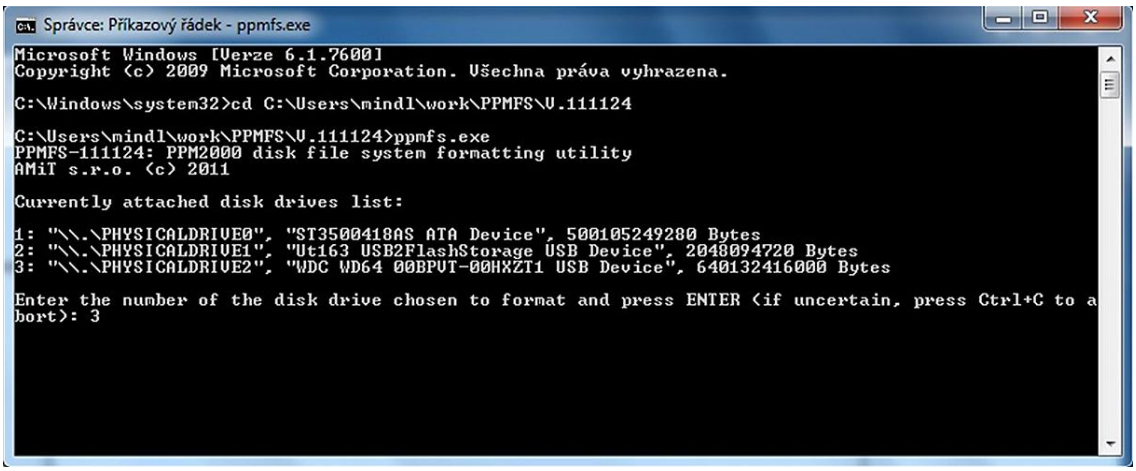

Správce: Příkazový řádek - ppmfs.exe
Microsoft Windows [Verze 6.1.7600]
Copyright (c) 2009 Microsoft Corporation. Všechna práva vyhrazena.
C:\Windows\system32>cd C:\Users\mindl\work\PPMFS\V.111124
C:\Users\mindl\work\PPMFS\V.111124>ppmfs.exe
PPMFS-111124: PPM2000 disk file system formatting utility
AMiT s.r.o. (c) 2011
Currently attached disk drives list:
1: "\\.\PHYSICALDRIVE0", "ST3500418AS ATA Device", 500105249280 Bytes
2: "\\.\PHYSICALDRIVE1", "Ut163 USB2FlashStorage USB Device", 2048094720 Bytes
3: "\\.\PHYSICALDRIVE2", "WDC WD64 00BPVT-00HXZT1 USB Device", 640132416000 Bytes
Enter the number of the disk drive chosen to format and press ENTER (if uncertain, press Ctrl+C to abort): 3

Fig. 25 - Selection disk for formatting

Note: To verify label of selected disk go to section Start->Computer-> then by right mouse button go to Administrate->Disk administration. – see figure below.

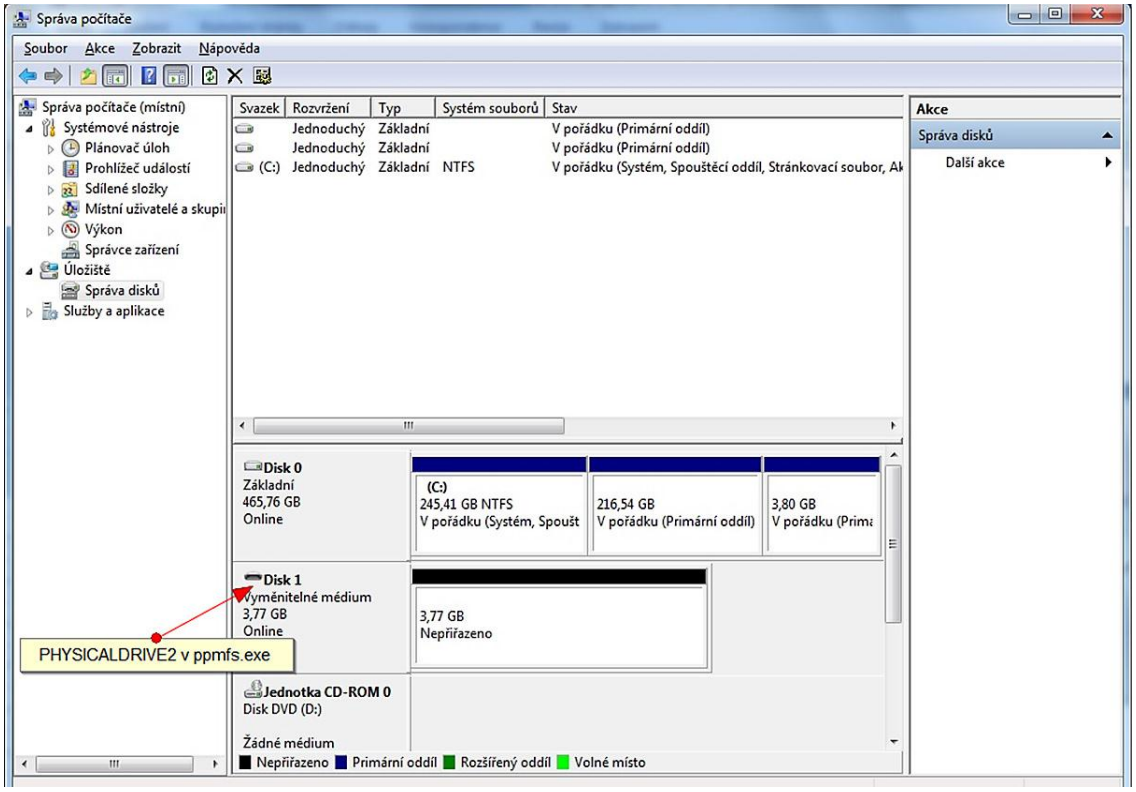


Fig. 26 - Window Disk administration

7. Program reacts with showing model and size of selected disk and prompts user to confirm operation.

8. Confirm by "y" and Enter. When all is OK, program starts disk formatting.
   Do not use any writing actions during formatting disk; the best of all is - do not start any other programs!

9. When formatting of disk goes well, program terminates by „Successfully written" message.

10. Install disk back into the recording unit